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CLINICAL LECTURES

ON

MIDWIFERY, AND THE DISEASES OF WOMEN AND CHILDREN.

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(Taken in short-hand by Charles D. Arnott, Esq., Student of Medicine.)

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LECTURE I.

CASE OF CROSSBIRTH;—INVESTIGATION INTO THE BEST METHOD OF TURNING;—RECOMMENDATION TO SEIZE THE HIGHER OR OPPOSITE KNEE OF THE CHILD FOR THIS PURPOSE;—MECHANISM OF PELVIC PRESENTATIONS;—PERITONITIS IN THE FŒTUS;—PERMANENCE OF THE OMPHALO-MESENTERIC BAND;—INTRA-UTERINE CAUSES OF DEATH AMONG PREMATURE CHILDREN, AND THEIR TREATMENT, &c. &c.

At this, our first clinical meeting, I propose to offer a few observations on the instance of transverse presentation, and turning, which you witnessed in the Maternity Hospital two days ago.—First of all, allow me to read to you the case as it has been reported by my excellent friend Dr Martin Barry.

"Christina Anderson, aged 28, married,—third pregnancy,—last catamenia in the beginning of March, continuing for two or three days,—time of quickening uncertain.

"On the morning of Saturday, 7th December, had a fall, in which the left hypochondrium was violently dashed against the corner of a large stone; says that she did not feel the movements of the child for longer than a day or two after this. On Tuesday the 17th,—ten days afterwards,—the child, when born, presented the separation of nearly the whole cuticle, with sero-sanguinolent infiltration of the scalp, and a state of looseness of all the cranial bones.—The abdomen was swollen, and on laying it open the spleen was found much enlarged, and patches of coagulable lymph were seen on its peritoneal surface; similar patches were present in the iliac and pelvic region connecting the peritoneum of the abdomen with that of the intestines; other portions of a similar inflammatory effusion were scattered over the intestines, more especially in the lower part of the abdomen.

"Labour commenced on Monday, 16th December, and was completed in 17 hours.—The membranes ruptured twelve hours before the full dilatation of the os uteri.

"During the labour the patient was bled and had an ounce of antimonial wine exhibited in ℥ss doses, to promote the dilatability of the cervix uteri.—Shortly before turning, ʒi of laudanum was exhibited, in order to moderate the uterine contractions, and facilitate the process of turning.

"The presentation was the right shoulder with the cord, and the child was removed by turning and extraction. This was performed by Professor Simpson, who, observing from the feet and legs, when they had been drawn down, that the position of the pelvic extremity of the child corresponded to the third position of the head with the toes pointing forwards, stated that the body as it came into the world would present a corresponding movement of rotation,—a movement forthwith seen by the writer and several others who were present.—The head was then born in the second or right occipito-cotyloid position."

Most of you are aware, that we cannot—except in the rarest cases—leave instances of shoulder presentations to nature. Experience abundantly shows us, that if we do not offer the required aid in these presentations, the woman, in general, either dies exhausted from the long continued, but fruitless efforts of the uterus to empty itself of its contents,—or the organ, by the violence of its own contractions, lacerates its own structure, and thus establishes one of the most fatal complications to be met with in the practice of midwifery, namely, rupture of the uterine walls. In these presentations, therefore, interference is imperatively required,—and this interference consists in so far altering the morbid position of the infant, that, instead of allowing it to remain with its long axis across, or at right angles to the long axis of the uterus, we introduce our hand, and bring down to the os uteri one of the two extremities of the *ovoid* mass of the child, (the child in the latter months being, as you know, folded up into an irregular ovoid form), in order to make the long axis of the body of the infant and the long axis of the body of the uterus parallel to each other. For this purpose we may bring down either the cephalic, or the pelvic extremity of the infant.

The cases are few in which it is proper and possible to bring down the head of the child to the os uteri,—or, in other words, in which we can and should perform what is termed *cephalic* turning or version.

In almost all cases—but especially in one like Anderson's—with the child dead, and the passages well dilated, or dilatable, we bring down the pelvic extremity of the infant, and so far change the presentation from one of the shoulder or arm, into one of the breech, feet, or knees.

Many modifications of this last operation—*podalic* version or turning—as it is termed,—have been proposed, and different varieties of it are advocated by different practitioners. By some we are advised, in all cases, to bring down *both* feet of the infant. Others again assert that to bring down *one* is always sufficient. Some advise a foot or feet; others one or both knees.—Let us enquire what method would be the most simple, and most practicable, in a case like the one before us.

I would first, however, remark that in turning, in any case, where the membranes are still fortunately entire—the female passages dilated—and the fœtus perfectly mobile in the liquor amnii—it matters, I believe, little whether we seize one, or both feet, or one or both knees.—All these parts are, under such conditions, so easily reached, and the whole operation of seizure, and version of the child, is then so simple, that it is almost needless to lay down set and formal rules (as some authors have done) for the exact part of the child which you should seize,—and the exact mode in which you should seize that part.—There is so much room to turn, as the child still floats in the liquor amnii, that, if you can seize *firmly*, almost any part of one, or of both of the lower extremities, with the introduced hand, you will readily effect your purpose. The flexure of the knees affords a firmer and better hold than the foot, or feet, and is hence probably preferable. It is, however, I repeat, sufficient, to seize firmly any of these two parts, whichever of them first comes within your reach.

But the operation of version, in a shoulder or arm presentation, becomes a much more difficult, delicate, and dangerous operation, when you require to turn, as in Anderson's case, with the waters already evacuated, and the uterus tonically contracted, and folded around the body of the child.—Under such circumstances, we require to know, and to study beforehand, the easiest method of operating for ourselves, and the most safe mode of operating for the mother.

Let us consider, therefore, what method of turning is the most simple, and the most practicable, under such conditions as I have just stated; and first of all let us inquire,—

SHOULD WE SEIZE BOTH FEET OF THE INFANT?

You see this method of procedure represented in the plates before us of Moreau, and it is a mode which is strongly inculcated by some of our latest authorities in midwifery. "Never be content," says Dr Lee, in his lately published lectures on midwifery, "never be content with one foot, when it is at all possible to grasp both." In most cases, I hold this method to be improper and unjustifiable, because it is almost always more difficult to seize both extremities than to seize one; because one is quite sufficient for our purpose, and more safe for the life of the mother; and because by pulling at one extremity (when pulling does happen to be required after the version is accomplished,) we more perfectly imitate the natural *oblique* position and passage of the breech of the infant, than when we drag it down more directly and more upon the same plane, by grasping and dragging at both limbs equally. The infant also assuredly incurs less risk of impaction of the head, and above all, less chance of fatal compression of the umbilical cord, when the os uteri and maternal canals have been dilated by the previous passage of the breech, increased in size by one of the lower extremities being doubled up on the abdomen, than when both extremities being seized and extended, these same passages are more imperfectly opened up by the lesser-sized wedge of the breech alone.

Notwithstanding, however, the greater difficulties, and consequently the greater dangers attendant on the operation, when we search for, and grasp both lower extremities, instead of one, it is still so dogmatically laid down as a rule by most obstetric authorities, that many practitioners seem to deem it a duty, not to attempt to turn the child without having previously secured both feet.

About two years ago, I was sent for by an accoucheur, enjoying a deservedly extensive practice, in order to assist him in the operation of turning in such a case as Anderson's. He had introduced his hand, and brought down one foot into the passages. For long he had been attempting to re-introduce his hand into the uterus, for the purpose of seizing and bringing down the remaining foot. His continued efforts, however, had proved perfectly useless, and he requested my attendance under this supposed difficulty. Without endeavouring to effect what he had laboured to accomplish, namely, the seizure and extraction of the retained extremity, I contented myself with dragging at the one foot already protruded, and with it alone pulled down the child without difficulty.

In few or no cases of turning is it proper or requisite to bring down both extremities, unless in the complication of turning under rupture of the uterus. In that case, but in that only, ought we to follow at once this procedure,—and here we follow it because, if we left the other extremity loose in the uterus or abdomen it would be apt to increase the lesion in the walls of the organ, if it happened to get involved in the aperture, or impacted against its edges. In some very rare instances in which, after version by one leg has been effected, and immediate delivery is necessary, the cervix and os internum occasionally contract so forcibly and strongly upon the protruded limb, whenever we drag upon it, as not to allow of a sufficient amount of traction being applied to this extremity without fear of lacerating its structures. In such cases also it may be well to attempt to repass the hand to secure the other extremity, for then by pulling at both extremities together, we incur less chance of injuring them than if we applied the same required amount of force to either of them singly.

SHOULD WE SEIZE ONE EXTREMITY ONLY?

From what I have already stated, you know my opinion, as to this being the proper method of proceeding in almost all cases of difficult turning. The method was long ago spoken of by Portal; and within the present century, Hoffman and Joerg in Germany, and my friend Dr Radford in this country, have severally written on the subject, and upheld, that in *no* case of turning ought we to lay hold of more than one extremity, for the purpose of effecting the version of the infant. I have just pointed out what I conceive to be two—perhaps the only two—exceptional conditions to this general rule.

Another question meets us. Supposing we intended, in turning, to bring down the pelvic extremity of the ovoid mass of the child, *what part of that extremity* should we lay hold of in order to make it the presenting part at the os uteri?

Some accoucheurs have thought, that if we seized and brought down the *breech* of the infant, it would be the safest mode of turning. This method, however, presents so many disadvantages, that it seems now entirely rejected from practice as a common mode of performing version; for it is difficult to reach up to the breech of the child—and it is difficult to take a sufficiently firm hold of it when you have once reached it—and it is difficult when once you have taken hold of it, to perform the evolution or version of the child with such a purchase.

We may limit, then, the part which we ought to lay hold of to the lower extremities, and I have already told you that I believe one extremity sufficient. The remaining question, therefore, is this,—What part of that extremity should we seize upon?

SHOULD WE TAKE HOLD OF THE FOOT OR THE KNEE?

I believe the seizure of the knee to be preferable, in most, if not in all cases, to the seizure of the foot, or rather, as it should be more correctly stated, to the seizure of the ankle of the child. I speak, you will recollect, of turning in cases of shoulder or arm presentation, in which the liquor amnii has been for some time evacuated, as in Anderson's case, and the uterus by its tonic contraction has clasped itself around the body and head of the child. Under such circumstances, it is an object of importance not to be obliged to introduce our hand farther than is absolutely necessary, into the cavity of the uterus, because the contraction of the organ, in many cases, opposes its introduction, and the forced introduction of it is apt to produce laceration.—It is an object also of equal moment to attempt to turn by a part which produces as little change as possible in the figure and form of the infant; because, if we thrust any of the angulated parts of the child against the interior of the contracted uterus, we would also thus be still more liable to produce rupture of that organ.—Now, holding these points in view, it appears to me, that the turning of the child by seizure of the knee presents several decided advantages over turning of the child by seizure of the foot. For,

First, The knee is more easily reached. As we slip our hand along the anterior surface of the protruding arm, and along the anterior surface of the thorax of the child, we always, if the attitude of the child has not been altered by improper attempts at version, or very irregular uterine action, find the knees near the region of the umbilicus of the infant—the lower extremities, as you are aware, being folded up *in utero* so that the knees are brought up to that part, and the legs flexed upon the thighs in such a manner that the heels and feet lie nearly in apposition with the breech of the child. To seize a foot, therefore, we would require to pass our hand about three inches (or, in fact, the whole length of the leg) *further* than we required to do in order to seize a knee.

Secondly, The knee affords the hand of the operator a much better hold than the foot.—By inserting one or two fingers into the ham or the flexure of the knee, we have a kind of hooked hold which is not liable to betray us. Every one, on the other hand, who has turned by the foot or feet, knows how very apt the fingers are to slip during the required traction, and how much in this way the difficulties of the operation are sometimes increased.

Thirdly, We produce, I believe, the necessary version of the body of the child more easily by our purchase upon the knee—because thus we act more directly on the pelvic extremity of the infant's spine, than when we have hold of a foot.

Fourthly, Turning by the foot appears to me to endanger greatly more the laceration of the uterus than turning by the knee.—The reason of this is sufficiently evident. When we turn by the foot, we have to flex the leg round upon the thigh, and thus at *one* stage of the operation, and during one part of the flexion of the leg, we are obliged to have the leg bent to a right angle with the thigh, and the foot of the infant thus projected and crushed against the interior of the uterus. You see this when, on the infant before me, I seize hold of the foot, and turn it round from its position at the breech, till I bring it up to the shoulder, the part which we are supposing to present at the os uteri. You can easily thus perceive, that when the leg of the child is thus brought round, it must rasp and scratch (if I may so speak) along the interior of the contracted uterus, and endanger to a fearful degree, the laceration of the organ. It is needless to say how much this danger is increased, when, after having brought down one foot, we pass again our hand, and attempt to bring down a second foot, (as is recommended by some authors), for thus we only double the danger of laceration of the uterus, from the forced and obstructed passage along its interior, of this other extremity.

One point remains for our consideration. Granting that it is proper to seize a knee, I think it a matter of the very first moment to know

WHICH KNEE SHOULD BE SEIZED?

On this point you will find no directions in any of our modern obstetric works, British or foreign, as far as I know them; and yet I believe the secret of turning with facility and safety in such a case as Anderson's—with the waters evacuated and the uterus contracted—depends upon the knowledge of which of the two lower extremities of the infant should be seized. If we turn with one of the extremities—and whether the foot or the knee—it should be the foot or knee of the limb on the *opposite side of the body* to that which is presenting. Thus, if the right shoulder or arm presents, we should take hold of the left knee or foot; and if the left arm or shoulder presents, we should take hold of the right knee or foot. I repeat, that I believe this point to be one of the most essential importance: and the reasons for the rule are simple.

In bringing down the fœtus in the operation of turning, we may, and should produce, two kinds of alteration in its position and figure. Thus, we may bend or flex the body forwards upon the *transverse* axis of the trunk; and we may rotate or turn the body round upon the *longitudinal* axis of the trunk. If we merely flex it, the operation of version will be one of difficulty; if we both flex and rotate the trunk at the same time, the operation will be one of comparative facility. By merely flexing the body upon its transverse axis, we are liable to bring down one of the lower extremities, whilst we do not displace the upper extremity, which is primarily presenting at the os uteri. If we *both* rotate and flex the body—that is, turn it both on its transverse and longitudinal axes—at the same moment, whilst we bring down the pelvic extremity of the child, the turning of the body of the infant carries away from the os uteri the part originally presenting.

Many of you must be acquainted with the fact, that obstetric authors have proposed various methods of removing away from the cervix uteri the presenting arm or shoulder, in order to allow of more space for the part which is brought down, and to produce the necessary evolution of the child. Thus some recommend the presenting part to be pushed up before we seize the feet; others advise the foot to be seized with the one hand, and the presenting part to be pushed up with the other; and others again counsel us to bring down one or both feet, secure them with a tape (as you see in the plate of Moreau), and, whilst pulling with this tape, to introduce the hand, after the lower extremities are brought down, for the purpose of pushing up the presenting portion of the upper extremity.

All these rules and complications are at once avoided by following the principle that I have just stated to you, of bringing down, whenever it is possible, the knee opposite that of the presenting arm or shoulder. When we do this, by carrying the knee diagonally across, if I may so speak, the abdomen of the child to the os uteri, we both, as I have said, *flex and rotate* at the same time the trunk of the infant, and in doing so, the semi-rotation of the trunk inevitably carries up the presenting arm, in proportion as the knee which is laid hold of is pulled down by the operator. I would add this, as another of the advantages of turning with one extremity, for if we pulled down both knees or both feet, or the foot or knee which was nearest to us, we would produce in many instances mere flexion of the body, *without* that rotation of it which is necessary to carry up and out of the os uteri, the presenting part of the infant.

I have insisted upon the advantages of taking hold of the knee that is highest and furthest from you, and believe this to be a matter of the very first moment. Now, it may appear to some of you that it would be more difficult to seize this knee than the knee of the side corresponding to the presenting arm; but if you reflect for a moment you will see that this difficulty is more imaginary than real. Both knees of the child, as the infant lies folded up in utero, are generally in juxta-position, and lying upon the abdomen of the infant, near the umbilicus. If, therefore, in passing your hand into the uterus, you insinuate it as you ought to do, along the anterior surface of the thorax and abdomen of the child, you come in contact with both knees at the same time. (See Plate, Fig. 1.) And the rule which I would give you is this, that instead of hooking your finger, or fingers, into the flexure of the lower or nearer knee, (*a*) you hook them instead into the flexure of the upper, more distant, or opposite one. (*b*). Both are so far, in general, equally near, or equally distant, and you seize the one or the other according as you take care to turn your finger so as to hook it into the flexure of the lower or the flexure of the upper. It has been strongly objected by some authors to the mode of turning by the knee or knees, that we cannot with the hand in utero make a sufficient

DIAGNOSIS BETWEEN THE KNEE AND THE ELBOW.

It is averred that the operator is exceedingly liable to mistake the elbow of the child for the knee, and thus to bring down the opposite arm instead of lower extremity—a result that would certainly render the case only the more complicated. I believe, however, that we might be and are equally liable to confound the foot with the hand, and thus lead to the same consequence, while the following simple rule will always enable you to escape the error and danger of mistaking an elbow for a knee. Suppose the child to be lying, as it does, with its extremities doubled up in the uterus, the elbow and knee may be always distinguished from each other by the *opposite directions* in which they point.—You have the salient angle, convexity, or rotundity of the knee, always looking upwards towards the upper or cephalic extremity of the child, whereas you have the salient angle, convexity, or rotundity of the elbow, always looking towards the lower or pelvic extremity of the infant. A glance at the sketches, (see Plate, Fig. 1 and 2,) will show you this. Hence, if we know the position in which the infant is lying, (and this we always do, for other reasons, ascertain previous to commencing our operation,) we may, by attending to this single fact, easily distinguish in all cases a knee from an elbow.

There is one point worthy of every attention in regard to the operation we have been considering, which I have not yet alluded to. It is this, that—particularly in cases of difficulty—you require to

USE BOTH YOUR HANDS FOR THE OPERATION OF TURNING.

In making this observation, I mean that whilst we have one hand *internally* in the uterus, we derive the greatest possible aid, in most cases, from manipulating the uterus and infant with the other hand placed *externally* on the surface of the abdomen. Each hand thus assists the other to a degree which it would not be easy to appreciate, except you yourselves were actually performing the operation. It would be extremely difficult, if not impossible, in some cases, to effect the operation with the single introduced hand; and in all cases it greatly aids and facilitates the operation. The external hand fixes the uterus and fœtus during the introduction of the internal one;—it holds the fœtus *in situ*, while we attempt to seize the necessary limb or limbs, or it assists in moving those parts, when required, towards the introduced hand;—and it often aids us vastly in promoting the version or evolution of the body of the child, after we have seized the part which we search for. Indeed, this power of assisting one hand with the other, in the different steps of the operation of turning, forms the principal reason for introducing as I have sometimes done, the left as the operating hand into the uterus—for thus we can, by passing the right hand between the thighs, and over the abdominal surface of the uterus, (the woman lying on her left side) have more perfect control over the child by our external manipulations with the latter hand. Besides, the left hand, when the patient is in the position I have described, more readily adapts itself to the configuration and axes of the pelvis. If we introduce and turn with the right hand, it is more awkward and difficult to manipulate the abdominal surface of the uterus with the left.

The mode of turning which I have recommended to you was followed in the case of Anderson. When I was first called to see her, all things were in a condition suitable for undertaking the operation. The membranes had burst some hours previously, when the os uteri was still comparatively rigid. It is, no doubt, a matter of moment to be able to turn *before* the waters have escaped, because, as I have already stated to you, the operation is then greatly more simple; but when the membranes do break—as in the case before us—with the os uteri still undilated and undilatable, we must wait with patience, and employ such measures as tend to relax that part. In the present instance, bloodletting was had recourse to for this purpose, and antimony exhibited. A short time before I saw her, Dr Barry had very properly given her a large dose of opium, in order to moderate the spasmodic or clonic contractions of the uterus, so as to admit of the more easy performance of the version of the child. The os uteri was quite dilatable when I reached the hospital, but the tonic contraction of the organ was so great that I feared there might be some delay and difficulty in the introduction of the hand, and evolution of the child. Such, however, was not the case to the degree anticipated, and the version was accomplished in two or three minutes.

The child was lying with its head towards the right iliac fossa, and its pelvis towards the left. The face, abdomen, and extremities of the infant, were looking forwards. (See plate, Fig. 1.) I therefore, as we always do in such cases, passed up my hand between the anterior or pubic surface of the uterus and the infant, in order to reach more easily the knee which I wished to seize.

As to the place, or side, where we ought to pass our hand—that is whether between the infant and the pubis, or between the infant and the sacrum—the rule is simple and evident. We pass our hand, as in the case before us, between the pubis and the infant, when we know the extremities of the child are looking anteriorly. We pass our hand between the sacrum and the infant, in those other cases in which we know the limbs of the child to look posteriorly. We do so for two reasons,—*first*, beecause there is always the greatest space for the introduction of the hand on that side of the fœtus to which its face, abdomen, and angulated extremities, look; and, *secondly*, it is only, of course, on this side of the fœtus that we can find and secure the lower extremities in order to produce the required evolution and extraction. Dr Lee lays it down as one of his "two most important rules" in turning, that,—however the trunk and extremities of the child may be situated—that is, whether the extremities look anteriorly or posteriorly—you ought "to pass up the hand between the *anterior* and shallow part of the pelvis, and the presenting part of the child." If the back of the infant were turned, as it sometimes is, to this "anterior or shallow part," it would be impossible, by any search in that situation, to get hold of one or other of the legs of the child, which are situated in the very opposite part of the uterus, and on the opposite side of the body of the fœtus;—and if the feet were thus really seized, they would be brought over the back of the child, and the spine so far greatly endangered. But Dr Lee's rule is so very obviously erroneous, and the result of some misconception or disregard of the mechanism of transverse presentation and turning, as not to require any formal refutation. His second important rule, "that when one hand is rendered powerless by the pressure of the uterus, you ought to withdraw this hand, and replace it by the other," will doubtless be in many cases, I fear, an unavoidable result of the mismanagement advocated by the first—and is rarely if ever required when you employ the proper hand at once. And every new and unnecessary introduction of the hand must be reprobated, as inflicting a new and additional source of danger upon the patient,—and hence should be avoided as far as possible.

You saw, in this instance, what are the usual preliminary measures adopted in connection with the operation of turning. We kept, as I showed you at the time, the patient placed upon her left side, with the trunk of her body situated across the bed. The right knee was raised by the hand of an assistant, and the uterus kept fixed and steady by pressure on the external surface of the abdomen. In preparing the hand and fore-arm for the operation of turning, these parts were perfectly uncovered, and everywhere anointed with lard, with the exception of the palmar aspect of the hand and fingers. These latter parts require always to be kept free, in order to secure a proper hold of the presenting part.

After cautiously passing the hand into the uterus, along the anterior surface of the protruded arm, I glided it between the anterior surface of the thorax of the child, and the anterior wall of the uterus, laying it flat during one slight pain that supervened, and insinuating it onwards immediately afterwards, till I reached the two knees lying in the umbilical region of the infant. I passed one finger into the flexure of the upper knee, and thus got sufficiently firm hold of that part, without displacing the lower extremities to any extent. Assuring myself, as we always do in the process of version of the child, of the *complete absence* of all clonic contraction of the uterus, I easily turned it round with the purchase I had, and brought down the left lower extremity, the infant making a complete rotation during its evolution as we shall see immediately from the direction of the toes, abdomen, and face.

We thus, you observe, make the version or evolution of the child during the *absence* of any uterine pain, but after bringing down the extremity, should any further assistance be required towards the extraction of the child,—it must, I beg you especially to remark, be made not during the absence of uterine contractions, but during the *presence* of them. In most cases, indeed, after the version is performed, we allow the uterine contractions themselves to expel the infant, but it was not necessary to wait in such a case as Anderson's, the pains being trifling, and the child being dead. I therefore pulled gently at the protruding leg during each subsequent contraction, and ultimately extracted the head from the pelvis by a purchase obtained by passing two fingers of the right hand over the neck of the child, and introducing other two into its mouth.

You will recollect that, in Dr Barry's report of the case, as I read it to you, he states an interesting and important fact with regard to the evidence which it afforded of the

NATURAL MECHANISM OF LABOUR IN FOOTLING PRESENTATIONS.

In this instance, as occasionally happens in pelvic presentations—both spontaneous and artificial—we found the toes looking towards the pubes, from which we knew that the face and chest of the child must be turned in the same direction,—and I stated to the gentlemen present, that this would not interfere with the process of extraction of the infant, for the child, during its further transit, would rotate round with its toes, &c. towards the nearest sacro-iliac synchondrosis, and not require any manipulation on our part to make it come out in that—its proper and most easy position. This is a subject I would wish particularly to impress upon your minds, for you will find it stated in almost every text-book, that in all pelvic presentations, whether they occur spontaneously, or whether they are artificial, as in cases of turning, it is proper and necessary for us to rotate so far the body of the child, that its toes, and hence its face, should be turned towards the posterior aspect of the pelvis, or, as some more properly advise, towards the nearest sacro-iliac synchondrosis.

We are recommended, for instance, by Dr Hamilton, to observe, (as soon as the child is born as far as the knees,) whether the toes point forwards or not,—and if they do point forwards, as they did in Anderson's case, we are further directed immediately to turn the child round, so that they may look to the nearest sacro-iliac symphysis.

But no such manipulation is required as a general rule in spontaneous pelvic presentations, and none in artificial pelvic presentations, especially when you bring down only one extremity. In all the cases which I have watched, the infant, as in Anderson's, during the passage of the trunk, rotates and assumes this position itself, without any interference on our part, and upon the principle which I stated to you at lecture this morning, (when speaking of similar rotations in head cases,) of the mutual physical relation of the child and pelvis, the former turning within the latter, as the helix of a partial screw will partially turn within its nut.

In natural or spontaneous pelvic presentations, this rotation that I allude to, occurs normally and naturally during the passage of the trunk; and that the rotation itself is a mere physical result, and independent of any vital actions on the part either of the child or mother, is proved to demonstration by an experiment which I have several times taken occasion to make—namely, that of dragging by one foot a dead fœtus through the pelvis of a dead mother. If, at the commencement of this experiment, we place the child with its toes, abdomen, and face, looking forwards, we shall find that, as the trunk passes through the pelvic cavity, it regularly rotates round, so that these parts come to present at the nearest sacro-iliac synchondrosis.

Now, what holds good in regard to the mechanism of natural pelvic presentations, holds good also in regard to the mechanism of artificial pelvic presentations, or of those which we make in the process of pelvic turning. In artificial, as in natural footling and breech cases, we ought, I believe, to discard in a great measure from our mind any necessity of interfering, so as to turn the infant in one position or another as it passes through the pelvis; for in 9 out of 10, or in 19 out of 20 cases, it will sooner or later assume for itself the easiest and best position for the passage of the head—namely, with the face turned towards the nearest sacro-iliac synchondrosis. This will almost invariably be the case, if we do not hurry the extraction of the child by pulling at the protruded extremities, or if we pull merely by one—and that the one *nearest* the pubis. *By dragging, when it is required, at the limb of the child lying next the pubis, and at this limb only*—we pull down the pelvis of the infant obliquely, (so far imitating the presentation and easy transit of this part of the body in normal pelvic cases, where the anterior ischium is always the lowest;) and by the same means we promote the necessary rotation of the child's body, while we would prevent it, on the other hand, by dragging at the sacral or posterior limb,—or by grasping and dragging simultaneously at both.

All obstetric authors seem to me to err in advising direct interference for the rotation of the child in artificial pelvic cases to be made by the hands of the practitioner. In speaking of the duties required in such circumstances, even my friend Dr Rigby (who in other points inculcates such sound and excellent doctrines with regard to the mechanism of parturition, and non-interference with it on the part of the attendant,) observes, "the uterus must be emptied as slowly as possible, and the anterior part of the child *must* be directed more or less backwards." It will, as I have stated to you, be directed more or less backwards by the physical relations between its own trunk and the interior of the maternal pelvis, so as to require no such adaptation to be attempted by any intermeddling on our part. A simple experiment will convince you that this will occur. I have already stated to you, that in repeated experiments made by dragging a dead child by one limb through the pelvis of a dead mother, I have seen the rotation spontaneously take place. But it will even take place, if I perform the same experiment much more rudely, by attempting to drag the leather fœtus before us through the bony cavity of this dry pelvis. If I place thus the fœtus with the feet in the pelvis, and the toes directed towards the pubes, or,—as is the case in nature, somewhat obliquely to one side of the pubes, say towards the right foramen ovale—and drag the fœtus through by pulling only at the anterior or pubic limb of the child, it turns, you observe, spontaneously as the trunk passes through the pelvis, so that the face looks at last to one ilium, or even backwards towards the nearest or right sacro-iliac synchondrosis; and this extent of rotation is the more sure to happen if the right arm chance to pass into the unoccupied space of the left sacro-iliac symphysis, or rather if that arm be removed so as not to prevent the rotation of the shoulders and head. The curious and illustrative experiment I have just shown you, was first pointed out to me by my esteemed friend Mr Zeigler.

I have already dwelt tediously long upon the mode of turning that was adopted in the case which is before us, and the mechanism of it. Let us now turn and consider

THE MORBID CONDITIONS AND MALFORMATIONS OF THE CHILD.

1. *The state of the cuticle* in Anderson's child was such as is generally seen when the infant has been dead for several days before its expulsion,—that is to say, it was peeling off extensively, though not anywhere thrown into the form of bullæ, as we sometimes find it. There was another evidence of putrefaction, namely, a great swelling of the scalp, from, as we saw on making a section of

it, a thick gelatiniform effusion of sero-sanguinolent fluid into the cellular tissue of that part. The swelling itself, and the effusion composing it, are, as you know, precisely of that kind which is known under the name of *caput succedaneum*, with this exception,—that its edges are not so very precisely defined. I have seen many children who have evidently died in utero some time previously to the accession of parturition, present a similar cranial effusion to this; and in two or three cases I have observed it, as in Anderson's child, even when the infant presented preternaturally. The effusion is so very like that of a caput succedaneum, that most people would certainly take it for one, and hence I would have you to deduce this observation, that a swelling of the scalp, with sero-sanguinolent effusion accompanying it, is not, as has been laid down by some medical jurists, either a mark of the child having been alive at the commencement of labour, or of the presentation being that of the head. The fact is, in putrefying children you have a sero-sanguinolent effusion into almost all the cellular tissue of the body, but it is greater in the scalp, and produces a more defined swelling there, in consequence of the cellular tissue of that part of the body being comparatively so loose in the child, and easily infiltrated.

2. *Peritonitis in the Fœtus in Utero* appears to be a frequent disease, and, in consequence of the blanched state of the placenta, and the swelled condition of the abdomen in Anderson's child, I stated to the gentlemen present, before we opened its body, that we would in all probability meet with some evident traces of the previous existence of peritoneal inflammation. Accordingly, on exposing the abdominal cavity, we found, as you now see, a number of loose patches, and membranous shreds of coagulable lymph effused upon the surface of the peritoneum. These patches are in greatest abundance towards the lower part of the peritoneal cavity, especially upon the caput cœcum, and in its neighbourhood. The surface of the spleen is coated at different points with an attached semi-membranous layer of coagulable lymph, and I have seen few cases of intra-uterine peritonitis in which the surface of the spleen did not, as in this instance, present the inflammatory effusion in a very marked degree. The spleen itself, in the child before us, is of an enormous size,—an observation which I have made in two or three other instances of peritonitis in the fœtus.

3. *The Omphalo-mesenteric Vessels persist as a Malformation in this Fœtus*,—that is to say, you perceive here running from the inner or peritoneal side of the umbilicus, directly towards the mesentery of the smaller intestines, a firm band, nearly as strong and thick as a piece of saddler's silk, and which I now raise on the handle of the knife. You know the origin and course of the omphalo-mesenteric vessels to be exactly that of the band which I show you. The permanence of this band, as a malformation in the fœtus at birth, I have seen in one or two other instances:—in one case in a fœtus in the museum, with appearances of intra-uterine hydrocephalus, and additional fingers, this malformation also exists. Spangenberg alleges, that he found those omphalo-mesenteric veins present, and apparently partially pervious, in an adult who died of phthisis towards the age of twenty.

But, returning to the Peritonitis, allow me to observe, that here, as elsewhere, the only true evidence of previous existing inflammation in the fœtus consists in the presence of some of the *organic* products of inflammation, such as coagulable lymph, and the pseudo-membranous adhesions which such lymph so readily produces when thrown out on serous surfaces, the presence of pus, ulceration, &c. We can, in no degree, depend upon colour alone, or upon serous or sero-sanguinolent effusions, as these are often the result of mere putrefaction after death.

I have just stated, that Peritonitis, as a disease of the fœtus in utero, is very frequent. For my own part, I believe that you will find evidence of it in most of those children that are born in a semi-putrefied state, and that have perished several days previous to birth, while there is no disease in the placenta or other appendages to account for the death of the infant. In the *Edinburgh Medical and Surgical Journal* for 1838 and 1839, I published some twenty or thirty instances in which the fœtus was found to present after birth evidences of the previous existence of acute peritoneal inflammation; and since that time I have had occasion to observe the disease in a number of other additional cases. Two or three weeks ago I took an opportunity of showing you a recent specimen of it in a fœtus that was born about the sixth month of utero-gestation. Since my observations were published, Dr West of London, and Dr Otto of Breslaw, have each recorded a number of similar cases.

This special disease of the fœtus—*peritonitis*—is interesting and important in one point, to which I now wish to direct your attention, namely, as being liable to occur successively in different children of the same mother, and thus sometimes producing a series and succession of premature still-born infants. In the case before us, the mother had a still-born child about a year ago.

During the few minutes that remain, allow me to direct your attention to this subject, which is one of no small practical moment, and let us consider

THE INTRA-UTERINE CAUSES OF DEATH AMONGST PREMATURE CHILDREN, AND THEIR TREATMENT.

The pathological causes that lead to this unhappy result, sometimes in a succession of pregnancies in the same female, are, as far as I have yet investigated them, principally *three* in number, namely,—

First, Peritonitis in the Fœtus, as in the child lying before us. And one remark applies to this and to the other causes,—namely, that in consonance with a curious law in intra-uterine pathology,—the same morbid conditions of the fœtus and its appendages are apt to recur to the same woman in successive utero-gestations. When the child dies of peritonitis, the placenta has always a whitish washed, or bleached appearance, as if it were drained of all red blood, but has no morbid change or deposit in its structure.

The other two causes of the successive deaths of premature children are referable to morbid conditions of the placenta itself, and consist of,

Secondly, Inflammatory Induration and Degeneration of the Placenta, such as you see in several specimens placed upon the table. In this morbid affection, the inflammatory action is generally confined to a limited portion, or a few lobules of the organ, whilst the others are left sound and free. In some cases, however, we find it invading the whole surface of the placenta,—an observation which you will see confirmed by the state of the organ in many cases such as this, which I now show you, where there has been born a secondary fœtus, along with one at the full time,—the secondary fœtus, as it is called, being merely a fœtus which had been destroyed as early as probably the fourth or fifth month, by the morbid alteration which had occurred in the structure of the placenta, or portion of the placenta belonging to it. In inflammatory induration, the morbid deposit and change seems generally to stretch, as shown in this preparation of Mr Goodsir's, from the maternal surface of the placenta towards the fœtal. The decidual membrane covering the exterior surface of the placenta is sometimes, as here, much thickened by the inflammatory deposit.

The other morbid condition of the placenta,—if we may call it morbid,—which leads sometimes to the successive death of children in the same mother, is

Thirdly, Hypertrophy of the Placenta.—When the placenta presents this condition, the organ is greatly enlarged ; the divisions between its lobules and maternal surface are very marked and very deep ; and the edge of the placenta seems as it were almost to turn over to a certain degree the boundary of the fœtal surface.

No event is liable to produce more domestic distress and unhappiness than the loss of a succession of children from the intra-uterine causes I have just mentioned. How then may we most easily make out the diagnosis of them ; and what treatment will be most successful in averting the evil to which they so generally lead ?

The *Diagnosis* of the pathological cause of the death of the fœtus, in one or two successive pregnancies, can only be made out, with any precision, by having an opportunity of examining the body of one of the fœtuses and its placenta. In doing so, we may be enabled to observe which of the three causes I have mentioned is the source of the calamity, and to direct our treatment accordingly.

Some years ago, when I was engaged in the investigation of Peritonitis in the Fœtus, I more than once asked myself the question, in what good could such an inquiry result? I felt utterly sceptical as to its being of any benefit, except as satisfying pathological curiosity. But often when we enter on a subject of pathological study, we really know not to what ultimate results it may lead, and never ought to condemn or eschew any morbid investigation, because we do not immediately see any practical advantage to which it may tend. I have latterly become convinced that the study of peritonitis in the fœtus may be made of no small practical utility in the following respect:—

In describing it, in the paper to which I have already referred you, in the *Edinburgh Medical and Surgical Journal*, I have, in discussing the exciting causes of the disease, stated, that in some cases the mother, as in the woman Anderson, has been exposed to bodily injury, &c., and after mentioning other probable morbific circumstances, have added, that it appeared to me highly probable, from the investigations I had then made on this point, that a great proportion of those children of syphilitic mothers that die in the latter months of pregnancy, may be shown to have perished under attacks of peritoneal inflammation; and further observations have led me to conclude that the evidences of peritonitis, in several successive children of the same mother, is a pretty certain test of one or other of the parents, especially the mother, being tainted with syphilis.

The practical deduction in the way of *Treatment* from this observation in the way of *Diagnosis* is evident. It is, I believe, in these cases of successive premature labours, where the child perishes of *peritonitis*, and in these cases only, that mercury and other non-syphilitic modes of treatment are alone useful, though these modes of treatment have been supposed to apply to *all* instances where there is the unfortunate habit of losing the infant in the last months of utero-gestation.

For the treatment of the cases in which the child dies in consequence of disease, not in its own structures, but in the economy and structure of the *Placenta*, I believe that totally different principles ought to be pursued; and in a number of instances now, I have had the good fortune to see, in my own practice, these means of treatment followed by the most happy and successful results.

You may easily understand the principles on which I have proceeded in these last affections, if, in the first instance, you recollect that the two functions which the placenta appears to perform in the fœtal economy, are those of nutrition and respiration; or probably we should more properly say, that this organ is the medium of these two functions between the mother and the infant.

When the placenta becomes diseased it can destroy the infant only, (seeing there is no morbid lesion in the fœtus itself) by the imperfect manner in which one or both of these functions is performed. Such children, however, as we find in cases of diseased placenta, would not appear to perish from want of nutrition, because in many instances we find them not more lean and atrophied than healthy children sometimes are at the time of birth; and on opening their bodies you have often abundance of deposit of adipose matter. I believe for my own part that they die generally rather from the diseased placenta not being able to act sufficiently as a *respiratory medium* between them and the mother, and that the infant in consequence dies from the morbid condition of the placenta, in the same manner as we should die if our lungs were densely studded with tubercular deposits, or extensively destroyed by inflammatory action.

Now the question is—with such an imperfect placenta, (or imperfect fœtal lungs, in other words) what means can we possibly adopt in order to make this diseased placenta serve as a respiratory organ to the infant for a very few weeks longer; the question being in general one only of a few weeks,—that is to say, if we could preserve the child's life during that period from the action of the deleterious influences of which I speak, we would save the child till it was fit to take on an extra-uterine existence.

I have generally in cases in which, from the history of the previous pregnancies, I knew the tendency to be to *Chronic Inflammation and Induration of the Placenta,* attempted to prevent the inflammatory action which produces the induration, from going to any considerable extent, by leeching from time to time, particularly at those periods when the woman would have had her catamenia present, provided she were not in the family way, because it is, I believe, at these periods that she runs most danger,—there being, during pregnancy, in many females a monthly *molimen* of blood in these parts, though there be no monthly discharge. But though we may moderate the inflammatory effusions in this way, we can seldom, I believe, prevent them. Hence, our object is to make as much as possible of the diseased placenta efficient as a respiratory organ, or rather to make the respiratory change in the remaining healthy part as active and intense as may be.

To understand how this may be done, consider for a moment how the fœtus does respire or breathe. Its type of respiration, as I have described it to you at other times, is like that of fishes. The blood of the fish is sent into the vessels of the gills in order to undergo the respiratory change which is there effected through the oxygen contained in the surrounding water. The blood of the fœtus is sent into the tufts or terminal branches of the fœtal placenta, (its gills, in other words), in order to be there exposed to the oxygen contained in the maternal blood, by which these tufts are washed in the cavernous structure of the placenta.

The respiration of the human fœtus is, I say, like that of a fish, then, with this difference, that the blood in the gills of the fish is arterialised by the *water* in which these gills are freely immersed, whilst the blood in the placental tufts of the fœtus is arterialised by the *maternal blood* in which these tufts are freely immersed. We can influence the vitality of the fish by the quantity of oxygen in the water applied to its gills. I believe we may do the same with the fœtus, by changing the quality of the maternal blood applied to its tufts.

Then comes the question, by what measures could we render the maternal blood as highly an oxygenised medium as possible, in order that, when it is applied to the fœtal placental tufts, it may make up by the quality or intensity of the respiratory change, which it there produces, for that loss of quantity which is a necessary consequence of a portion of these placental tufts being already destroyed by disease.

I have attempted to do this, and in a number of cases, as I have already stated, apparently with perfect success, by keeping the patients constantly on small doses of alkaline salts, such as chlorate of potass, nitrate of potass, bicarbonate of soda, &c., given several times a-day, on an empty stomach, exactly as Dr Stevens, some years ago, proposed to do for the restoration and arterialisation of the un-arterialised blood in fever patients.

You are aware that the addition of alkaline salts to the blood in this way appears to promote greatly—I had almost said to impart—arterial changes and properties, and that in a way which physiologists and chemists have not yet been able satisfactorily to explain. If you cover a coagulum of newly drawn venous blood, with a thin layer of water, the surface of the blood continues to retain its black colour. If you add alkaline salts to the intervening layer of water, the air will very speedily act through this medium so as to render the clot of a red arterial colour.

Patients have repeatedly averred to me, that the use of the salts I have spoken of, has a perceptible influence on the strength of the motions of the fœtus,—or, in other words, on its muscular power and vigour for the time being; but the observation is liable to so many fallacies on the part of the parent, that, probably, we should not build much upon it. But if these salts act in the manner which I suppose, on the maternal blood, the fœtus, under their use, is just placed in a better and purer atmosphere, (to use language applied to extra-uterine life), and in this better atmosphere is capable of living for a few weeks longer than it otherwise would have done. I think it might be a matter of some chemical importance to inquire, what special salts would probably be of most use in rendering the mother's blood as highly an arterialising medium as possible, and if the use of iron in any form would increase its power in this respect. The subject is quite open for inquiry, and one in regard to which I know not any very accurate existing data.

I have stated to you that *Hypertrophy of the Placenta* seems to occur successively in different pregnancies in the same woman, and sometimes to be a cause of the death of the infant in the last weeks. One of the preparations on the table is a specimen of this diseased condition, and the patient from whom it was taken, had produced six or seven dead-born premature children. Mr Goodsir has directed his attention particularly to this effect of hypertrophied placenta, and similar observations have been made by some continental accoucheurs. It is difficult to say how the hypertrophy of the placenta destroys the functions of the organ, for in the specimen before you, there was no special lesion in the body of the child itself. Sometimes, however, the child presents dropsical effusions, such as anasarca and ascites. Probably the mutual compression and impaction of the different lobules and parts of the hypertrophied placenta on each other, are such as to diminish and destroy its action as a respiratory organ, and to impede the circulation through its vast collection of vessels. Under these circumstances, the alkaline salts might also be of use in the way of lengthening for a time, the intra-uterine life of the infant.

In all the three series of cases which I have adverted to, that is to say,—in cases where children of the same mother have died successively of Peritonitis before birth,—where a series of children have been lost from Inflammatory Induration of the Placenta,—and where the Hypertrophy of the Placenta has acted in the same way,—in all of these, I say, I believe that the *induction of premature labour* about the seventh or eighth month ought to be a point of treatment held in view, and frequently had recourse to. I look upon this remark as especially holding good with regard to the placental cases; and that obstetric authors should add, (what no one of them, so far as I know, mentions) the diseased states of the Placenta to which I have alluded, as a *cause* for the induction of premature labour, when they have recurred several times upon the same mother, and produced death of the child but a few days previous to its birth. Out of three cases of diseased placenta which have been under my care since the commencement of the present year, in two I induced premature labour successfully, as regards both mother and child, one of the patients having previously lost six, and the other three children. I had thoughts of allowing the third to go on to the full period, but fortunately, natural premature labour came on about the eighth month, and a living child was born. The placenta was so destroyed by inflammatory induration in this last case, that I am sure it could not have served as a lung for the child for a much longer period. Nature here pointed out strongly, and effected by her own efforts, what ought to be done by art in similar instances.

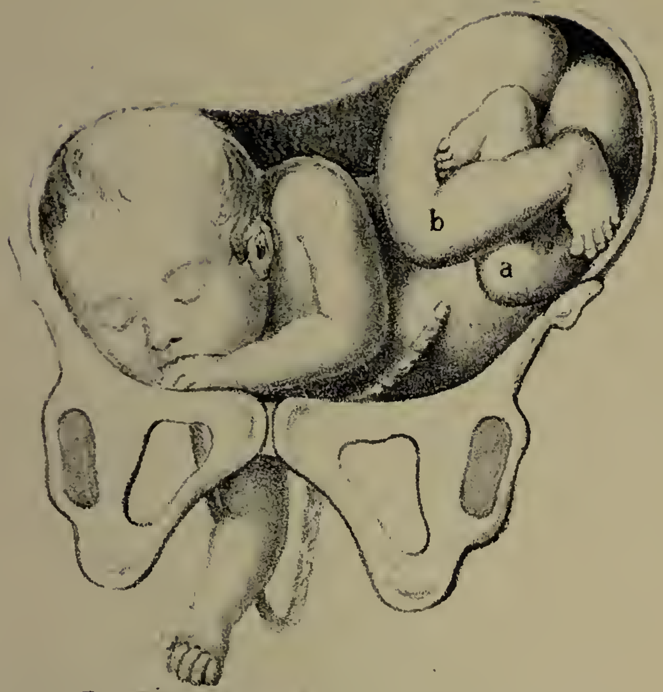
In this and other instances where premature labour is required, the introduction of a sponge tent into the orifice of the uterus is by far the simplest and the safest means. In one of the two cases which I have just mentioned, a tent was put in at 12 at noon, and a larger one about 8 in the evening. Pains came on in an hour or two afterwards, at a time when the os uteri was *already* dilated by the action of the tents, and the first stage of labour, as it were, *half completed* before labour pains had yet begun. In 13 hours in all, after the introduction of the tent, a living child was born. It is seldom, however, that uterine contractions occur so speedily after the commencement of these or other measures for their induction.

Explanation of Plate.

Fig. I. Shows the position of the child in the case of the woman Anderson.

Fig. II. Illustrates the effect of projecting a foot (when we turn by it) against the walls of the tonically contracted uterus, and the consequent danger of laceration from this practice.

Fig.1.



Presentation of right arm, and cord, in the case described in the Lecture.

Fig.2.

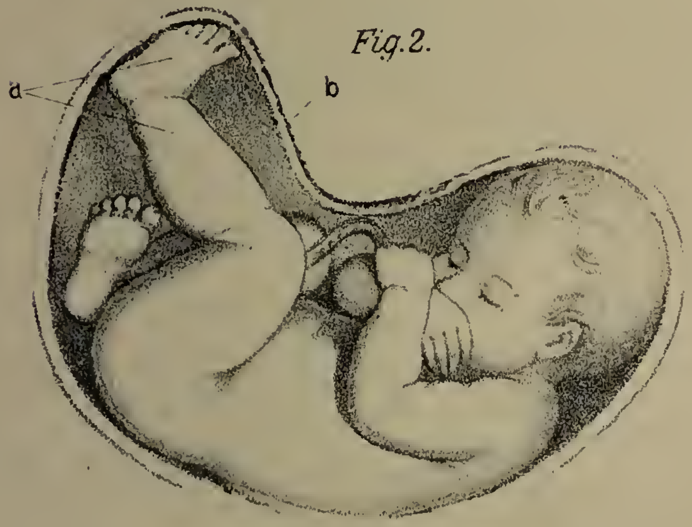


Diagram shewing projection of foot against the contracted Uterus, in the common mode of turning.

PLATE ILLUSTRATIVE OF DR SIMPSON'S CLINICAL LECTURES. Nº 1.